

Flight Test - Required 18/04

Work Order ID 68089

PRELIMINARY ISSUE



Wednesday, April 06, 2011 11:39:52 AM

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 4/6/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/18/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

100

0.00



DOCUMENT CONTROL

DC

Memo

8 ulosb7

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-207

CHG001

N/A CP 11-04-19

for BG 11-5-27

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-247 using CNC bender program D206-667-207

DP 11-4-11

120

0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

to Pat Dwg only

8 ulosb7

40

D 206 667 207 B68089

**Work Order ID 68089**

Page 2

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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130

0.00



Crosstubes

Crosstubes

**Memo**

0.00

1-Drill pilot holes in tube using drill Jig DT & DT and drill table DT8577 and tower holes #6 as per QSI0010 and as per Dwg D206-667-247. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT & DT as per Dwg D206-667-247 Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT & DT as per Dwg D206-667-247. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT & DT as per Dwg D206-667-247

6-Drill Fwd rivet holes using drill Jig DT as per Dwg D206-667-147. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT as per Dwg D206-667-247.

8-C'sink holes as per Dwg D206-667-247.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-247 Inside of Cuff (Do not engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per

SAD 11-04-12

11-4-12

# Work Order ID 68089

Wednesday, April 06, 2011 11:39:52 AM



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Cust Item ID:

Required Date: 4/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Dwg  
D206-667-247

140

Crosstubes Chemical Conversion

0.00

SAN 11-04-12

①



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

150

QC3- Inspect Part Finish

0.00

11 04 12 ①



QC

Memo

0.00

Quality Control

160

QC5- Inspect part completeness to step on W/O

0.00

CP 11.04.12 ①



QC

Memo

0.00

Quality Control

[illegible]

Page 4

\_\_\_\_\_

**Abstract**

1. The first group of respondents was made up of 100 randomly selected individuals from the general population of the United States. The second group was made up of 100 randomly selected individuals from the general population of the United States. The third group was made up of 100 randomly selected individuals from the general population of the United States. The fourth group was made up of 100 randomly selected individuals from the general population of the United States. The fifth group was made up of 100 randomly selected individuals from the general population of the United States. The sixth group was made up of 100 randomly selected individuals from the general population of the United States. The seventh group was made up of 100 randomly selected individuals from the general population of the United States. The eighth group was made up of 100 randomly selected individuals from the general population of the United States. The ninth group was made up of 100 randomly selected individuals from the general population of the United States. The tenth group was made up of 100 randomly selected individuals from the general population of the United States.

**Abstract**

...the ...

**Customer:**

**Reference:**

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 10

**Abstract**

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

**Insp.  
Stamp**

0.00

...the ...

Outsource2

## Memo

0.00

### Outsource process - NDT

Liquid Penetrant Inspection as per QSI 038Or  
Issue P/O: 13857  
LPI as per ASTM 1417  
Level 2 Attach copy of NDT results to work order

CL 11/04/13 ①

0.00

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

## Packaging

### Packaging

## Memo

0.00

### Packaging

Ensure copy of NDT results attached to work order.

Page 13 (1)

0.00



QC

## Memo

0.00

## Quality Control

Ensure results are as per Dwg D206-667-247

71 11-04-16

# Work Order ID 68089

Wednesday, April 06, 2011 11:39:52 AM



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Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Item Name: 206 Aft Crosstube

Stop



Start Date: 4/6/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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200

0.00



SprayPaint

SprayPaint

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2  
2-~~Paint~~ outside crosstube with White Imron as per QSI 005 4.2

primer 117 319  
paint 115 985  
clear 117 101

RT 11-04-14

RT 11-05-25

(P40)

True  
Defect

PRIME:  
Start Time: \_\_\_\_\_  
Finish Time: \_\_\_\_\_

PAINT:  
Start Time: \_\_\_\_\_  
Finish Time: \_\_\_\_\_

~~prime only~~ all to pat  
per DS/CP 11-14-06

210

0.00



QC14- Inspect Spray Paint

Memo

0.00

Wrap in plastic bag to protect from scratches

nl 11 05 15 (1)

11 05 26 (1)

QC

Quality Control

W/O: 68089		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11-05-09	200	<del>remove supports</del> grind off remaining magnebond Feather edge paint using Scotch brite or 320 grit paper re-weldline	BT	11/05/09		11.05.09 Q51042	
11-05-09	200	re paint blue copper Q58 005	BT	11-05-25	1		

Part No: D206-667-207BL PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**Work Order ID 68089**

Wednesday, April 06, 2011 11:39:52 AM

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Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 4/6/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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220

0.00



Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Install nut plates as per Dwg D206-667-247.

RT 11-04-18

230

0.00



Skidtubes

Crosstubes

Memo

0.00

Crosstubes

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up.

A/R Magnobond 6398 : 116677

2-Install supports and clamps as per Dwg D206-667-247. Torque clamps to 80-100 in lb

RT 11-04-15

A10

W/O: 68089		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11-05-26	230	re assemble using <del>the</del> blue supports 2892-1B62592 + new clamps MS21920-22 m 117279 scrap old clamps have old supports re worked + returned to stock — see w/o 70115 as per B# 70115	BT	11-05-26		✓ 11-05-27	

Part No: D206-667-207BL PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Work Order ID 68089



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Wednesday, April 06, 2011 11:39:52 AM

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 4/6/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00

inspected Assembly to

11

04

18 (17)

QC

Memo

0.00

Rev A Day

8/16/07

Quality Control

250

Pick Kit

0.00

N/A CP 11.04.14

11/5/07

Packaging

Memo

0.00

Packaging

260

QC4- 100% Inspect kits for completeness

0.00

N/A CP 11.04.14

QC

Memo

0.00

Quality Control

8/16/07 to Rev A  
Day.

# Work Order ID 68089



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Wednesday, April 06, 2011 11:39:52 AM

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 4/6/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-207								
	Location: _____								
	PPP Rev: _____								
280		0.00							
	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

*N/D*  
*11.04.19*

*Puro/27*

*test. PA1*  
*11.04.21*

*11/5/30*

*11-05-30*

POSITIVE RECALL  
EFFECTIVE 11.04.19 AUTH W  
RELEASED OP DATE 11.05.25

# Picklist Print

Wednesday, April 06, 2011 11:39:49 AM

Page 1

Work Order ID: 68089

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube

Start Date: 4/6/2011

Required Date: 4/18/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: RevA 11.01.13 New Issue EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN5-10A Bolt		Purchased	No				Each	320.0000	210	10			
-----------------	--	-----------	----	--	--	--	------	----------	-----	----	--	--	--

Location	Loc Qty	Loc Code
ST337	320	
116704	20	
116924	50	
117010	50	
117313	200	

AN5-32A Bolt		Purchased	No				Each	153.0000	24	4			
-----------------	--	-----------	----	--	--	--	------	----------	----	---	--	--	--

Location	Loc Qty	Loc Code
ST340	153	
115108	43	
115589	60	
117161	50	

AN5-34A Bolt		Purchased	No				Each	72.0000	304	4			
-----------------	--	-----------	----	--	--	--	------	---------	-----	---	--	--	--

Location	Loc Qty	Loc Code
ST340	72	
115835	12	
116003	20	
116704	20	
117010	20	

# Picklist Print

Wednesday, April 06, 2011 11:39:49 AM

Work Order ID: 68089

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube

Start Date: 4/6/2011

Required Date: 4/18/2011

Start Qty: 1.00

Required Qty: 1.00

AN960JD516 NAS1149D0563J Purchased No

Each 0.0000

X18 18



Washer

D206-667-247TRN Manufactured No

Each 0.0000

1



Crosstube Ass'y

D2873-043 Manufactured No

Each 24.0000

2



Nut Plate Assembly

Location

Loc Qty

Loc Code

LG052

24

65375

4

66898

20

D2873-045 Manufactured No

Each 19.0000

2



Nut Plate Assembly

Location

Loc Qty

Loc Code

LG052

19

65992

19

D2892-1 Manufactured No

Each 28.0000

2



Support

Location

Loc Qty

Loc Code

LG052

28

42785

16

62592

6

65717

6

re work + return to stock  
as per B 70115

X2 11-05-26

# Picklist Print

Wednesday, April 06, 2011 11:39:49 AM

Work Order ID: 68089

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube

Start Date: 4/6/2011

Required Date: 4/18/2011

Start Qty: 1.00

Required Qty: 1.00

D3595-063-450

Manufactured No

Each

71.0000

4



RUBBER CUSHION



BT 11-04-15

Location

Loc Qty

Loc Code

LG

66

67353

66

LG055

5

67067

5

Each

184.0000

14

MS20601-AD4W10

Purchased

No



RIVET



BT 11-04-15

Location

Loc Qty

Loc Code

LG051

184

116186

3

116767

82

117193

99

Each

849.0000

4

MS21042L5

Purchased

No



Nut



BT 11/5/27

Location

Loc Qty

Loc Code

ST300

849

115594

89

116105

500

116548

260

Each

85.0000

4

MS21920-22

Purchased

No



Clamp(per MIL-DTL-8783C)



M117279 BT 11 05 26

BT 11-04-15

Location

Loc Qty

Loc Code

LG050

85

116207

35

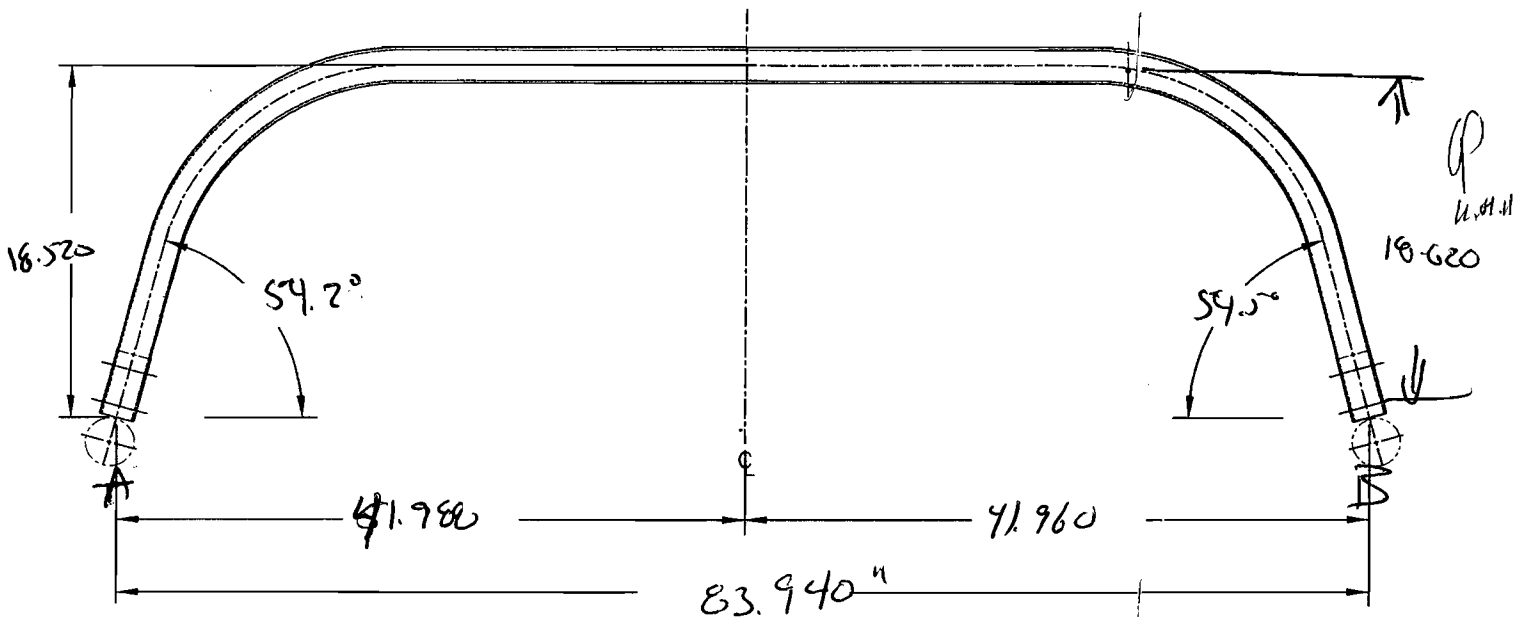
117279

50

X4

DART AEROSPACE LTD		Work Order:	68084
Description: Crosstube		Part Number:	D206-667-207
Inspection Dwg: D206-667-207		Rev: PA)	Page 1 of 1

Required Dimension	Min	Max
Height	18.34	18.60
1/2 Span	41.79	42.05
Angle	54	56
Total Span		



Comments
Height is 0.020 over tolerance on one side. Acceptable CP 11.64.11

QC15 Inspection	8
Date	11/04/11

Rev	Date	Change	Revised by	Approved
		New Issue		

Item	Qty -247	Part Number	Description
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115  
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-607 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

PRELIMINARY ISSUE

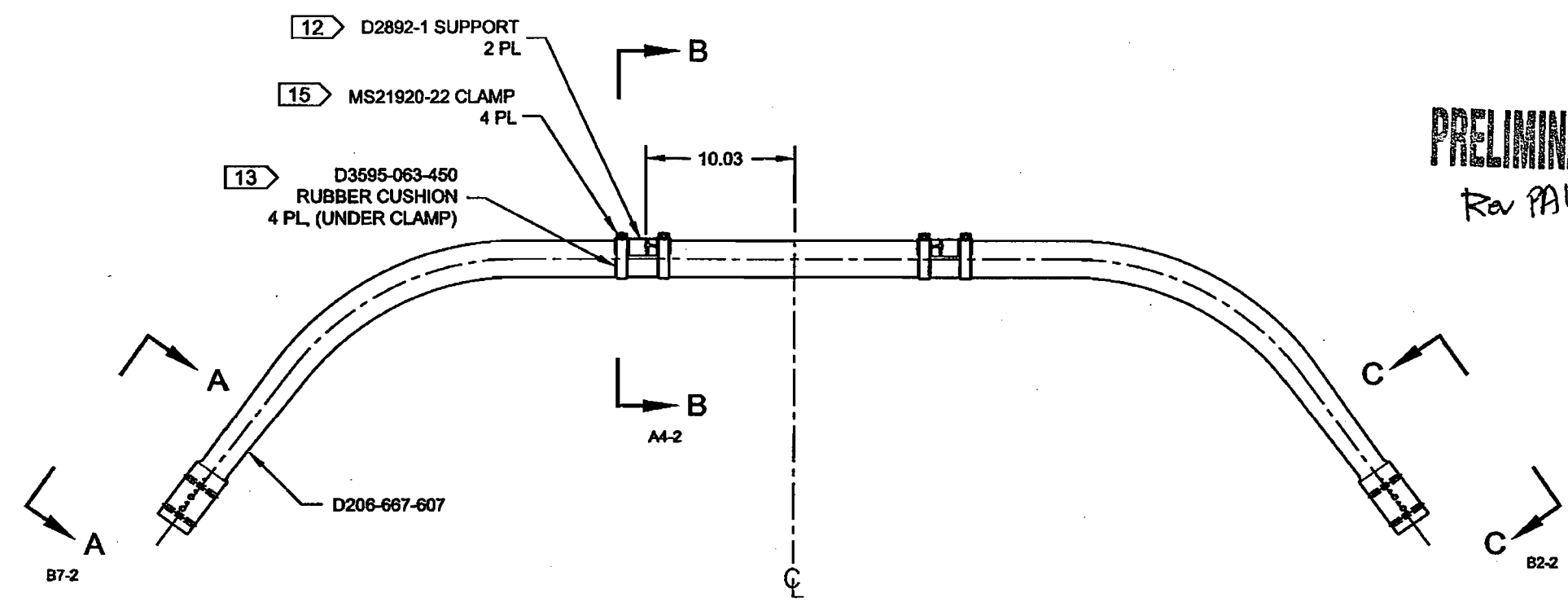
Rev PA1 11.01.06

68089

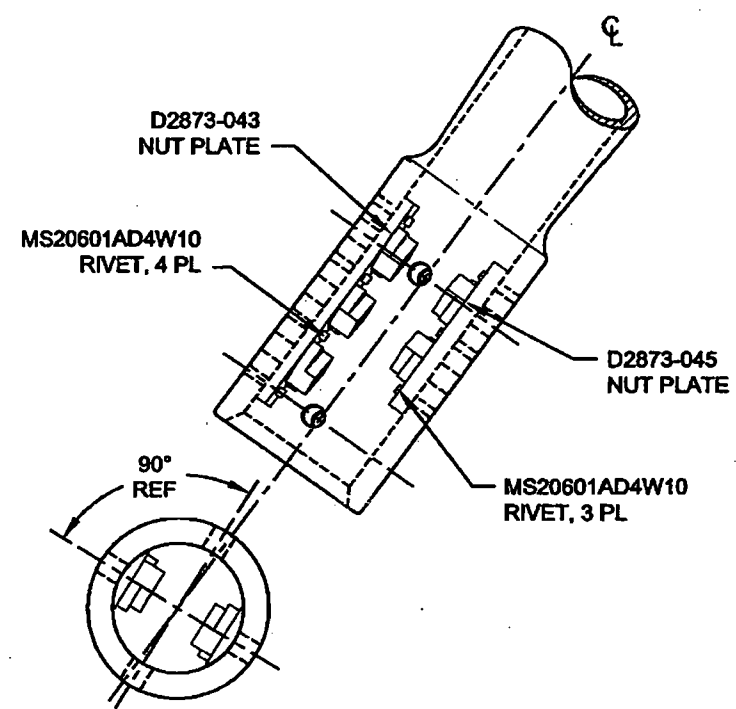
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REV.	DESCRIPTION	BY	DATE
DRAWN	DART AEROSPACE LTD		
CHECKED	HAWKESBURY, ONTARIO, CANADA		
MFG. APPR.	DRAWING NO. D206-667-247	REV. #	1
APPROVED	TITLE CROSSTUBE ASS'Y (206L MID AFT)	SCALE	NTS
DE APPR.			
DATE	10.12.23	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

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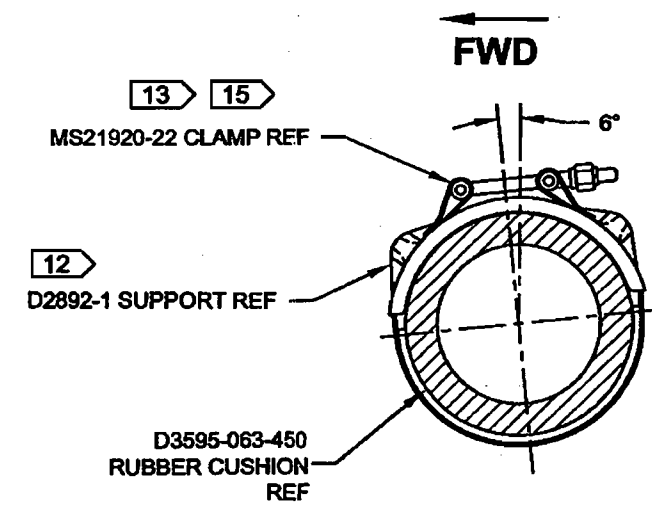
PRELIMINARY ISSUE  
Rev PA1 11.01.06



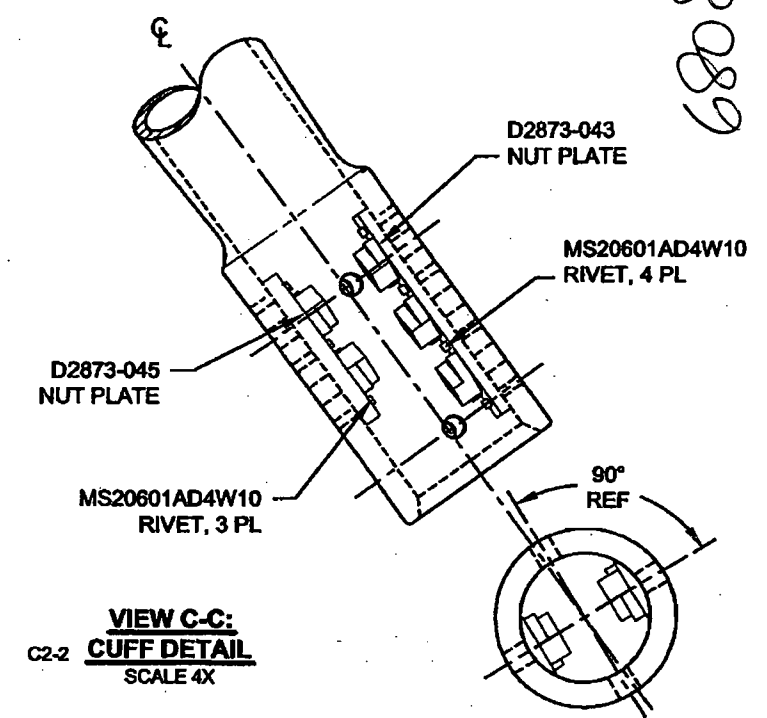
**D206-667-247**  
**ASSEMBLY DETAIL**  
(VIEW LOOKING FWD)





**VIEW A-A:**  
**CUFF DETAIL**  
SCALE 4X



**SECTION B-B**  
SCALE 5X



**VIEW C-C:**  
**CUFF DETAIL**  
SCALE 4X

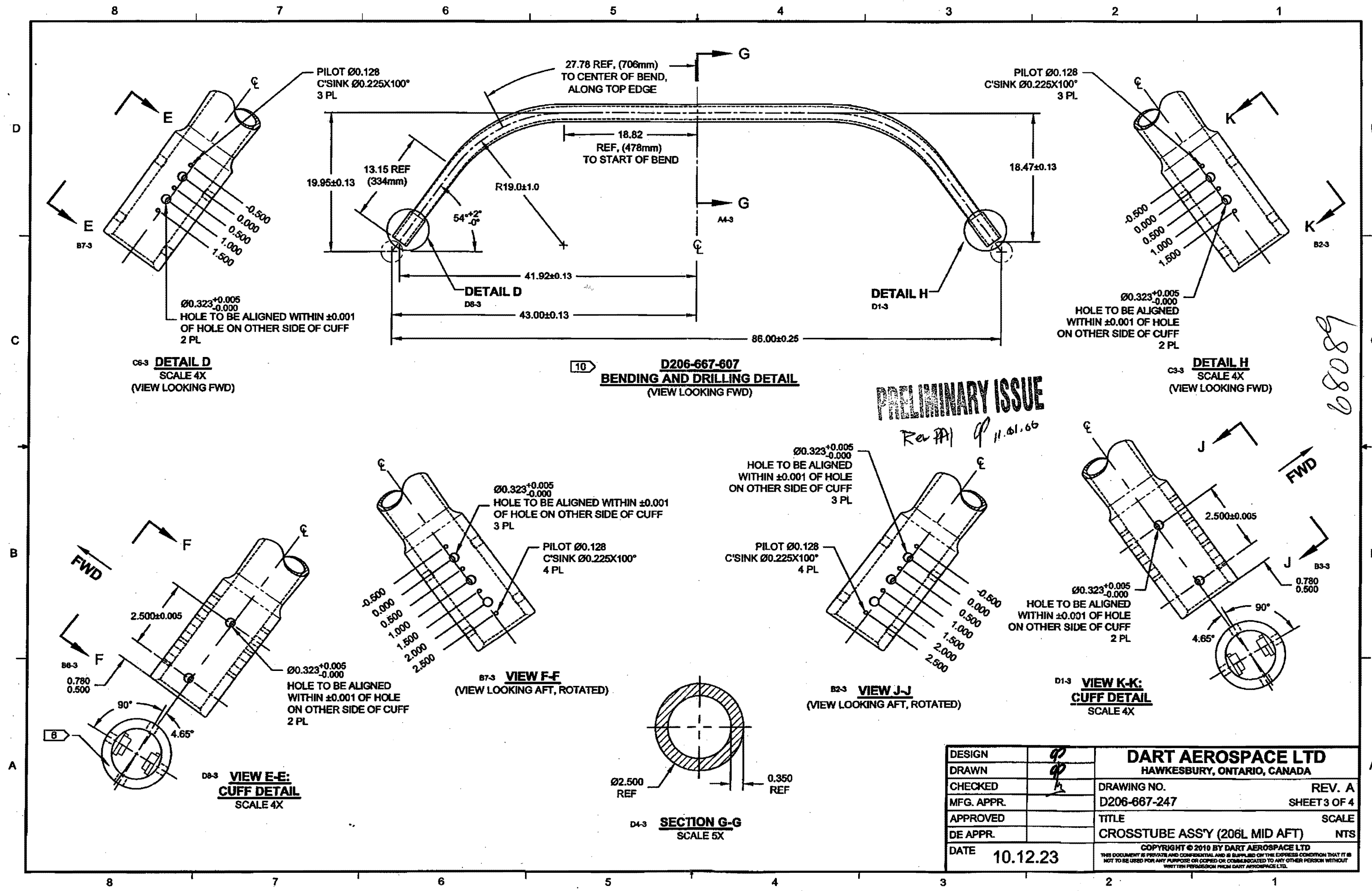
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DRAWN	97	<b>HAWKESBURY, ONTARIO, CANADA</b>	
CHECKED		DRAWING NO.	REV. 
MFG. APPR.		D206-667-247	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT)	NTS
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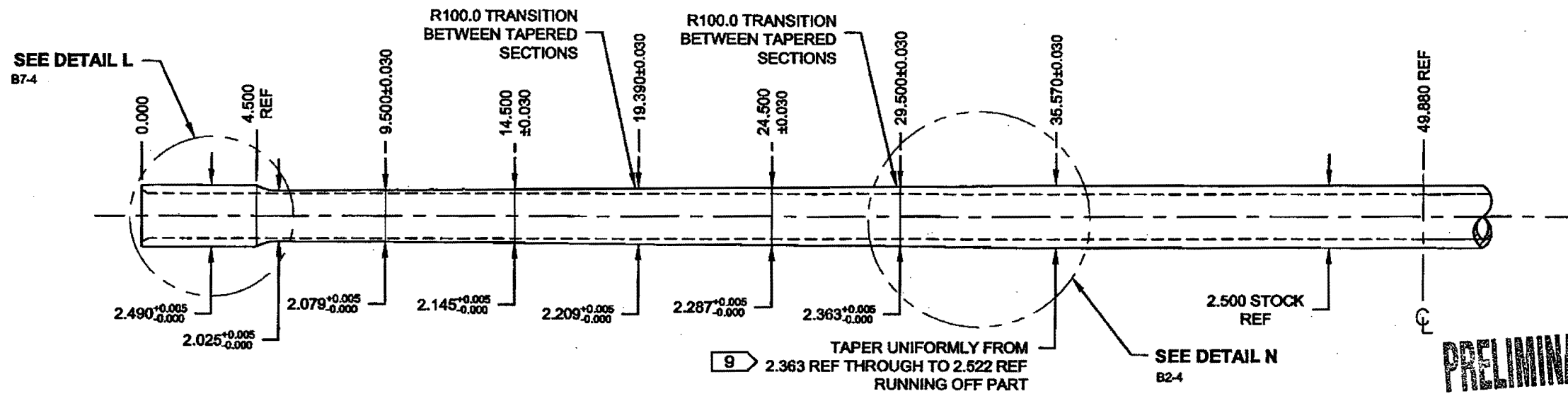
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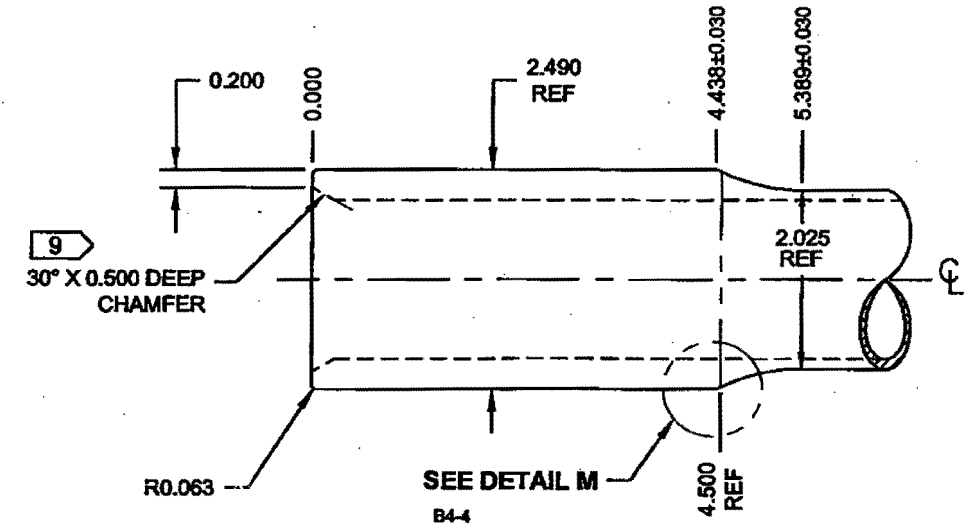
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DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D206-667-247	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT)	NTS
DATE	10.12.23	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



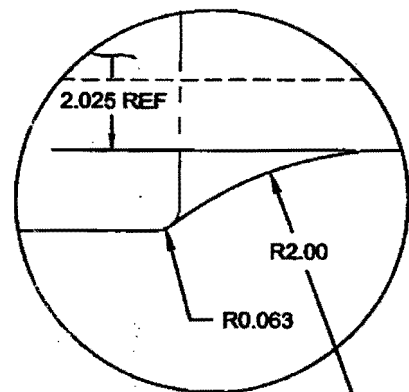
**PRELIMINARY ISSUE**

Rev PA1 11.01.06

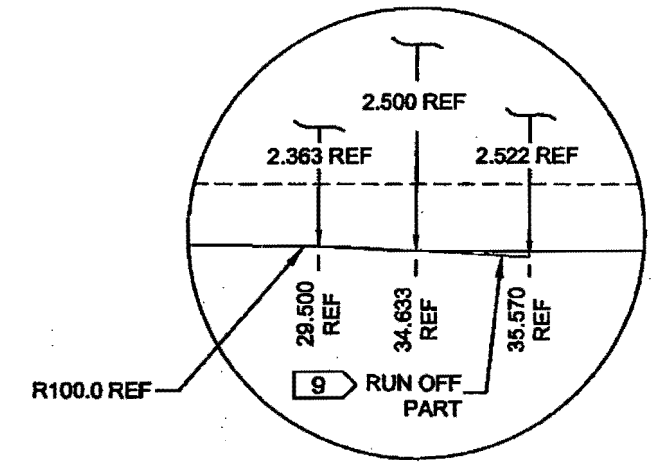
**TURNING DETAIL**



**DETAIL L: CROSSTUBE CUFF**  
SCALE 2.5X



**DETAIL M: CUFF TRANSITION**  
NOT TO SCALE



**DETAIL N: TAPER RUN-OFF**  
NOT TO SCALE

68089

DESIGN	99	<b>DART AEROSPACE LTD</b>	
DRAWN	99	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D206-667-247	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT)	NTS
DATE	10.12.23	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPLICIT CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	



**HeathAir**  
INTERNATIONAL (1991) INC.

681 Ave. Lepine, Dorval, Québec H9P 1G3  
Tél.: 514 636-1000 • Fax: 514 636-0031

W.O. 44191

A.M.O. Number: 46/90

## NON-DESTRUCTIVE TESTING REPORT

### GENERAL COMPONENT INFORMATION

REGISTRATION:

MODEL/TYPE:

SERIAL NUMBER:

TOTAL HR/LDG:

OPERATED BY:

BASED AT:

### INSPECTION REQUIREMENTS

Carry out FPI of (4) cross tubes (external surface) as per ASTM E-1417-05 and the Dart QSI 038, Section 4.1.1 (on file at client) - parts delivered to HeathAir.

Qty (2) P/N D212-664-101 S/N's B67866 and B67867.

Qty (1) P/N D206-667-207BL S/N B68089.

Qty (1) P/N D206-667-107BL S/N B68088.

Sales Order Ref.: 230626

Contact: Chantal Lavoie at 613-632-5200 for pick-up.

*Handwritten:* 11-04-14

☐ RADIOGRAPHY

☐ ULTRASONIC

☒ PENETRANT

☐ MAGNETIC PARTICLE

☐ EDDY CURRENT

### INSPECTION REPORT

Fluorescent penetrant inspection was performed in accordance with the above requirements on (4) cross tubes.

Note: A Level 3 penetrant was substituted for the requested Level 2 (3 is more sensitive)  
Ardrox 970P25E Batch #04B503.

(4) cross tubes inspected. (4) PASSED / (0) FAILED.

THE MAINTENANCE DESCRIBED ABOVE HAS BEEN PERFORMED IN ACCORDANCE WITH  
THE APPLICABLE STANDARDS OF AIRWORTHINESS

DATE April 13, 2011

INSPECTED BY: *[Signature]*

### CUSTOMER INFORMATION

CUSTOMER: Dart Aerospace

P.O. NUMBER

Chantal

ADDRESS:

CONTACT NAME:

LABOUR	@	\$
MATERIALS	@	
TRAVEL EXPENSES	@	GST
HOTEL EXPENSES	@	PST

INVOICE NO.

*Handwritten:* 13857

TOTAL \$

WHITE COPY - INSPECTION FILE • YELLOW COPY - CUSTOMER • PINK COPY - ACCOUNTANT

Item	Qty -247	Part Number	Description
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

# **GENERAL NOTES:**

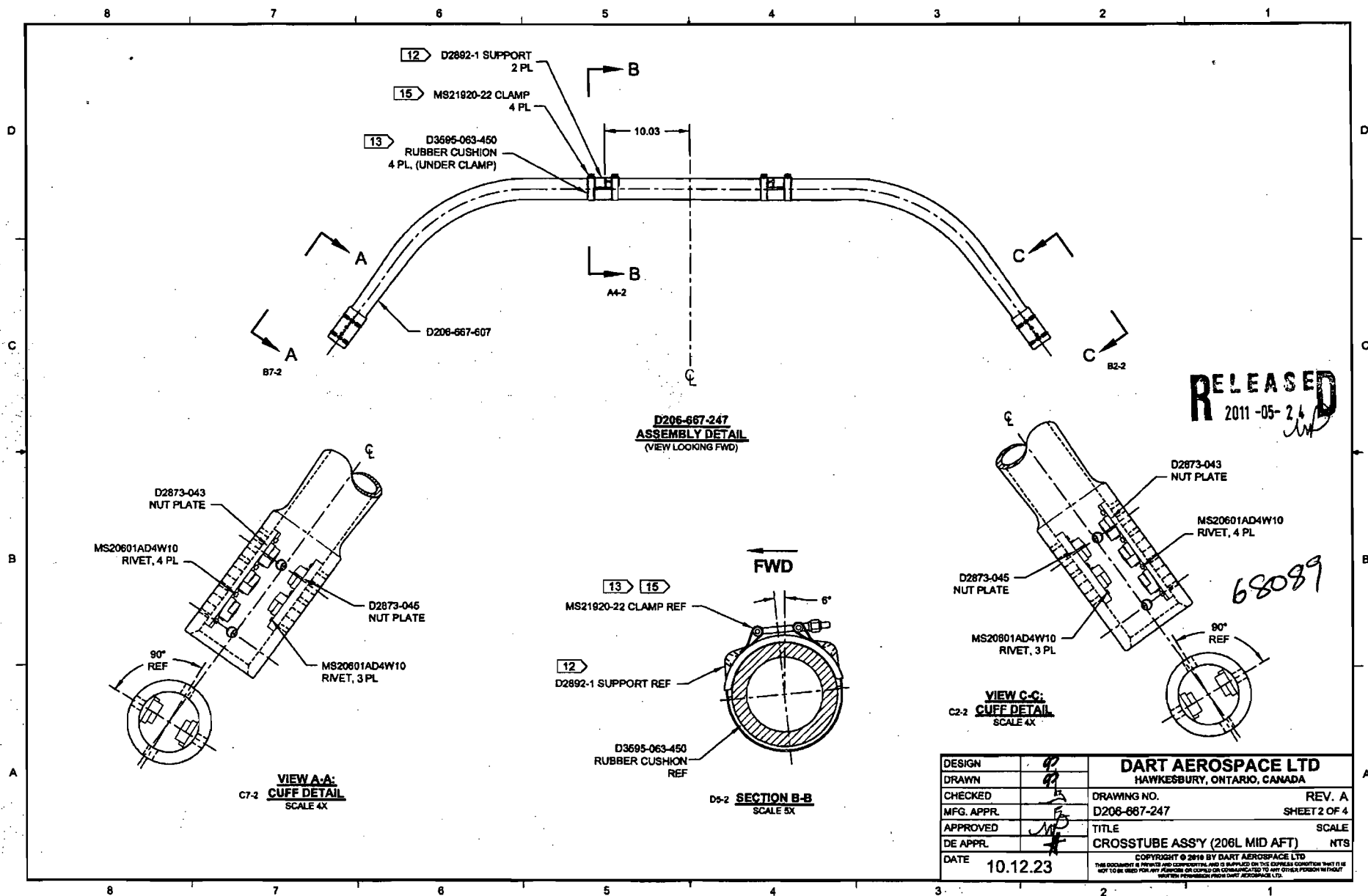
- 1) MATERIAL: MANUFACTURED FROM D6004-115  
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON  
INSIDE OF CLIFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-607 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,  
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE  
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI  
016. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE  
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE  
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS  
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT  
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN  
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

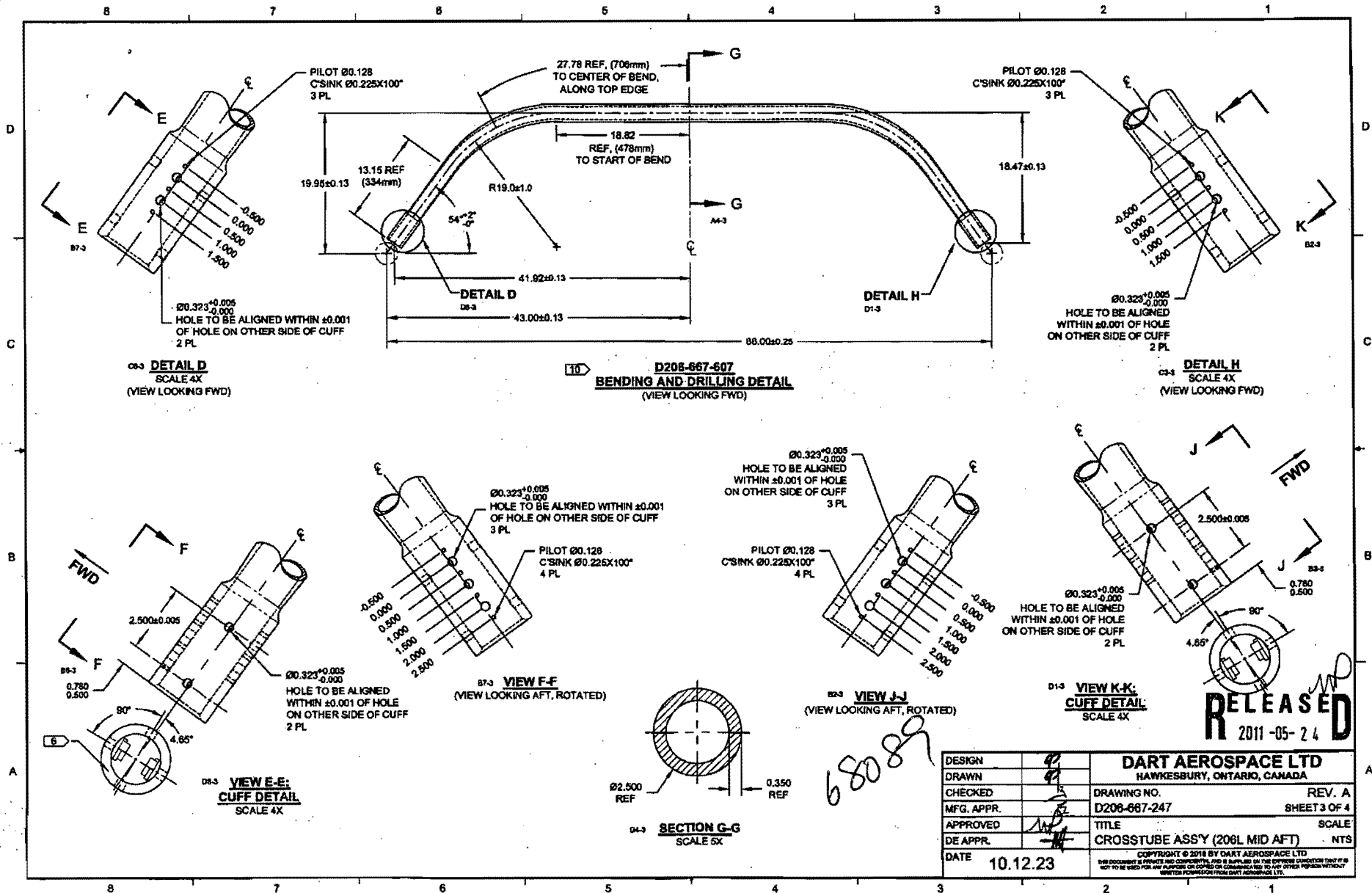
68089  
**RELEASED**  
2011-05-24  
IND

A	NEW ISSUE	CP	10.12.23
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DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.12.23		

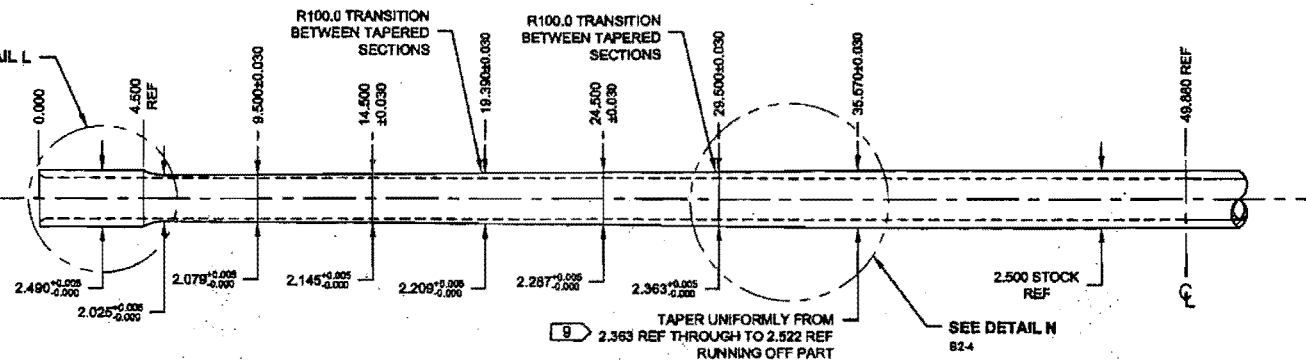
<b>DART AEROSPACE LTD</b>		REV. A
HAWKESBURY, ONTARIO, CANADA		SHEET 1 OF 4
DRAWING NO.	D206-667-247	SCALE
TITLE	CROSSTUBE ASSY (206L MID AFT)	NTS
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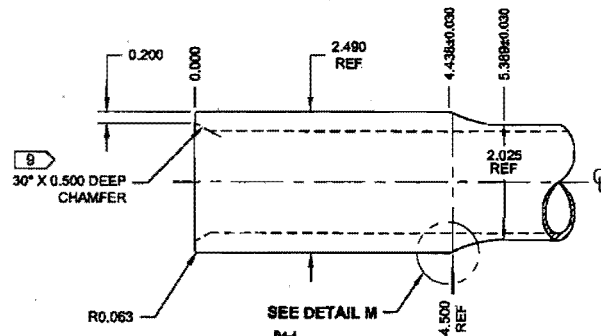


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DRAWN		HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. REV. A
MFG. APPR.		D206-667-247 SHEET 3 OF 4
APPROVED		TITLE SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT) NTS
DATE	10.12.23	

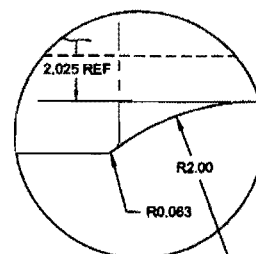
SEE DETAIL L  
B7-4



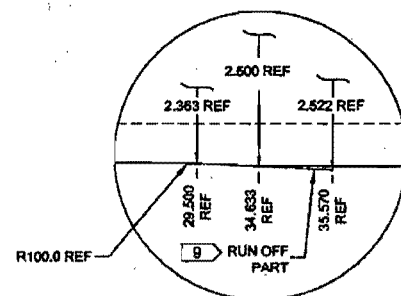
**TURNING DETAIL**



C7-4 **DETAIL L: CROSSTUBE CUFF**  
SCALE 2.5X



B6-4 **DETAIL M: CUFF TRANSITION**  
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**  
NOT TO SCALE

68089

**RELEASED**  
2011-05-26

DESIGN	92	<b>DART AEROSPACE LTD</b>	
DRAWN	92	HAWKESBURY, ONTARIO, CANADA	
CHECKED	92	DRAWING NO.	REV. A
MFG. APPR.	92	D206-667-247	SHEET 4 OF 4
APPROVED	92	TITLE	SCALE
DE APPR.	92	CROSSTUBE ASS'Y (206L MID AFT)	NTS
DATE	10.12.23	COPYRIGHT © 2019 BY DART AEROSPACE LTD	
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## 5.2 MID-HEIGHT CROSSTUBES

Item	Qty -107	Qty -207	Part Number	Description
	X		D206-667-107	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 MID FWD
		X	D206-667-207	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 MID AFT
7	1		D206-667-147	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 MID FWD
8		1	D206-667-247	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 MID AFT
10	*2		D2891-1	SUPPORT
11		*2	D2892-1	SUPPORT
13	*4		D3595-063-395	RUBBER CUSHION
14		*4	D3595-063-450	RUBBER CUSHION
16	*4		MS21920-20	CLAMP
17		*4	MS21920-22	CLAMP
19	4		AN5-32A	BOLT
20		4	AN5-34A	BOLT
21	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	NAS1149C0563J	WASHER (OR AN950JD516)
40	*2	*2	D2873-043	NUT PLATE
41	*2	*2	D2873-045	NUT PLATE
44	10		AN5-7A	BOLT
45		10	AN5-10A	BOLT
46	4		AN5-30A	BOLT
47		4	AN5-32A	BOLT
48	12		AN970-4	WASHER (OPTIONAL)
50	10	10	NAS1149C0563J	WASHER (OR AN960JD516)

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-147-247 ASSEMBLIES ABOVE